The Central Research institute
of the Armed Forces of Ukraine

ISSN (print): 2786-9318
ISSN (online): 2786-9326
Military Science. Vol. 4 No. 2 (2026)

Received: *April 12, 2026*| **Revisions Requested:** - | **Revision Received:** -
Accepted: *June 21, 2026* | **Published Online:** *August 5, 2026*

Licensed (C) by Creative Commons Attribution International License 4.0 (CC BY-NC-SA)

DOI: 10.62524/msj.2026.4.2.2

Development of the Strategic Monitoring Concept for Ukraine's National Security and Resilience Based on the Practical Implementation of the SOTA Information and Analytical System

Mykola Dobysh
Candidate of Sciences in Geography
Deputy Head of the Center – Head of the 3rd Department of the 7th Center
State Scientific and Research Institute of Cybersecurity Technologies and Information Protection
03142, Maksym Zalizniak Street, 3, Kyiv, Ukraine
e-mail: m.dobysh@cip.gov.ua
ORCID: 0000-0001-9024-9771

Dmytro Kupriyenko
Doctor of Military Sciences, Professor
Head of the Education Quality Assurance Department – Chief Research Fellow
Bohdan Khmelnytskyi National Academy of the State Border Guard Service of Ukraine
29007, Shevchenka Street, 46, Khmelnytskyi, Ukraine
e-mail: dakupriyenko@gmail.com
ORCID: 0000-0002-4086-1310

Bohdan Morklyanyk
Honored Education Figure of Ukraine
Doctor of Technical Sciences, Professor
Professor of the Department of Information Technologies
Yevhenii Bereznyak Military Academy
04050, Illienka Street, 81, Kyiv, Ukraine
e-mail: morklyanykb@gmail.com
ORCID: 0009-0000-6564-6804

Valentyn Petrov
Doctor of Political Science, Associate Professor
Professor of Department of Global and National Security
Educational and Scientific Institute of Public Administration and Civil Service
of Taras Shevchenko National University of Kyiv
04050, Akademika Romodanova Street, 12/2, Kyiv, Ukraine
e-mail: mailto:valentyn.petrov@gmail.com
ORCID: 0000-0003-3067-4367

The Central Research institute
of the Armed Forces of Ukraine

ISSN (print): 2786-9318
ISSN (online): 2786-9326
Military Science. Vol. 4 No. 2 (2026)

Olha Salnikova
Honoured Figure of Science and Technology of Ukraine
Doctor of Science in Public Administration, Senior Research Fellow
Professor of the Department of Theory and Practice of Management
of Faculty of Sociology and Law
National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”
03056, Peremohy Avenue, 37, Kyiv, Ukraine
e-mail: olga_salnikova@ukr.net
ORCID: 0000-0002-7190-6091

Oleksii Solomytskyi
Doctor of Military Sciences, Professor
Head of the Defense Management and Military Policy Department – Deputy Head of the Defense Management and Armed Forces Development Directorate
The Central Research Institute of the Armed Forces of Ukraine
03049, Povitrianykh Syl avenue, 28 B, Kyiv, Ukraine
e-mail: solosa1@gmail.com
ORCID: 0000-0001-8061-8895

Volodymyr Trofymenko
Honored Lawyer of Ukraine
Doctor of Legal Sciences, Professor
Deputy Head of the State Service for Special Communications
and Information Protection of Ukraine
State Service for Special Communications and Information Protection of Ukraine
03110, Solomyanska Street, 13, Kyiv, Ukraine
e-mail: v.trofymenko@cip.gov.ua
ORCID: 0000-0001-6032-5550

Abstract. This article examines the development of the Strategic Monitoring Concept for Ukraine's National Security and Resilience based on a synthesis of the practical implementation outcomes of the SOTA networked information and analytical system. The study aims to identify the scientific propositions that have been empirically validated through the system's operation and to substantiate their contribution to the further development of the theoretical foundations of strategic monitoring. The methodological framework combines systems analysis, structural-functional analysis, comparative analysis, and the methods of scientific generalization and abstraction. The empirical basis of the study consists of the practical operational experience gained from deploying the SOTA networked information and analytical system across public authorities, security and defence institutions, and other governmental organizations. The findings demonstrate that the practical implementation of the information and analytical system provides an empirical foundation for refining the conceptual framework of strategic monitoring. The study substantiates the understanding of strategic monitoring as a continuous process of information and analytical support for strategic management and identifies an integrated information and analytical environment as the system-forming element of this concept. Furthermore, it clarifies the role of interagency information sharing, strategic situational awareness, and the integration of heterogeneous information resources in supporting strategic decision-making. The results extend the theoretical foundations of strategic monitoring by demonstrating that the practical operation of an information and analytical system can serve as an empirical basis for their further development. The practical significance of the findings lies in their applicability to the development of the national strategic monitoring system, the

ISSN (print): 2786-9318
ISSN (online): 2786-9326
Military Science. Vol. 4 No. 2 (2026)

enhancement of information and analytical support for strategic management, the digital transformation of the security and defence sector, and the design and modernization of integrated information and analytical systems.

Keywords: integrated information and analytical environment; information and analytical system; interagency information sharing; situational awareness; strategic management; strategic decision support.

Introduction

Russia's full-scale armed aggression against Ukraine has fundamentally transformed the country's security environment, which is now characterized by high dynamism, multidimensionality, uncertainty, and the rapidly evolving nature of threats.

At the same time, new opportunities have emerged, and their timely exploitation has become an important prerequisite for advancing various dimensions of state activity.

Under these conditions, the requirements imposed on the system of public administration have increased substantially. These include the timely identification of both adverse and favourable changes in the security environment, the comprehensive assessment of their implications for the realization of national interests, the forecasting of future developments, and the provision of information and analytical support for strategic decision-making. Consequently, there is an increasing need to establish and ensure the sustainable operation of a comprehensive strategic monitoring system capable of providing continuous information and analytical support for strategic management through the integration of heterogeneous information resources, advanced analytical technologies, and network-enabled collaboration among public authorities, security and defence institutions, and other governmental organizations.

In recent years, strategic monitoring of national security, situational awareness, the development of information and analytical systems, and the digital transformation of public administration have attracted increasing attention from both Ukrainian and international scholars [1–5]. Previous studies have extensively addressed security environment assessment, the operation of situation centres, information and analytical support for public authorities, and the application of digital technologies in public governance [6–10]. However, the use of practical experience gained from the operation of information and analytical systems as an empirical basis for advancing the theoretical foundations of strategic monitoring remains insufficiently explored. In particular, the transformation of implementation experience into new scientific knowledge represents one of the key challenges in contemporary research within this field.

As part of the completed research programme, the authors developed the conceptual and methodological foundations of strategic monitoring for Ukraine's national security and resilience and designed the SOTA information and analytical system to provide information and analytical support for a network of situation centres operated by public authorities and the security and defence sector. The principal outcomes of this research have been reported in the authors' previous publications, which established the methodological framework for strategic monitoring, substantiated the role of the SOTA information and analytical system in the digital transformation of the national security system, and proposed approaches to the strategic management of Ukraine's national interests [1–2].

The deployment of the SOTA information and analytical system across public authorities, security and defence institutions, critical infrastructure operators, and other governmental organizations generated a substantial body of empirical evidence. This evidence made it possible to validate the proposed theoretical and methodological solutions, evaluate their applicability under real-world operational conditions, and identify directions for their further refinement. The empirical findings obtained through the system's practical operation constitute the foundation of the present study.

ISSN (print): 2786-9318
ISSN (online): 2786-9326
Military Science. Vol. 4 No. 2 (2026)

Accordingly, the scientific problem addressed in this article is to synthesize the results of the practical operation of the SOTA information and analytical system as an empirical basis for advancing the Strategic Monitoring Concept for Ukraine's National Security and Resilience. This approach enables a transition from merely demonstrating the operational effectiveness of the proposed scientific solutions to their conceptual refinement and further theoretical development. Accordingly, the aim of this article is to further develop the Strategic Monitoring Concept for Ukraine's National Security and Resilience by synthesizing the outcomes of the practical implementation of the SOTA information and analytical system, identifying the scientific propositions that have been empirically validated, and substantiating directions for their further development.

Methodological Framework

The methodological framework of this study is based on a systematic analysis of the results obtained through the practical implementation of the SOTA information and analytical system and their comparison with the conceptual and methodological principles of the Strategic Monitoring Concept developed in the authors' previous research.

The research methodology integrates systems analysis, structural-functional analysis, comparative analysis, scientific generalization of implementation outcomes, and scientific abstraction. The combined application of these methods made it possible to assess the extent to which the practical implementation of the SOTA information and analytical system validates, refines, and further develops the conceptual principles of strategic monitoring for Ukraine's national security and resilience.

The empirical basis of the study comprises the results obtained from the practical implementation of the SOTA information and analytical system across public authorities, security and defence institutions, and other governmental organizations, as well as the analytical materials generated during its operational use. The theoretical foundation is provided by the authors' previous studies, which established the conceptual and methodological framework of strategic monitoring and introduced the SOTA information and analytical system.

The methodological approach adopted in this study is aimed at identifying the relationship between the practical outcomes of the SOTA information and analytical system and the further development of the Strategic Monitoring Concept for Ukraine's National Security and Resilience. This approach enabled the identification of scientific propositions that have been empirically validated through practical implementation and provided a basis for substantiating directions for their further theoretical development.

During the final stage of manuscript preparation, the authors used the Gemini 3.6 Flash artificial intelligence model exclusively for language editing, including stylistic refinement and grammar and spelling verification. The AI system did not contribute to the research design, data analysis, interpretation of the findings, or the formulation of scientific conclusions.

Results and Discussions

Practical Implementation of the SOTA Information and Analytical System as an Empirical Validation of the Strategic Monitoring Concept

The practical implementation of the SOTA information and analytical system provided an empirical validation of the conceptual and methodological principles underlying the Strategic Monitoring Concept for Ukraine's National Security and Resilience developed in the authors' previous studies. The deployment of the system across public authorities, security and defence institutions, and other governmental organizations created an opportunity to evaluate the applicability of the proposed scientific approaches under real-world operational conditions.

The operational results of the SOTA information and analytical system confirmed the feasibility

ISSN (print): 2786-9318
ISSN (online): 2786-9326
Military Science. Vol. 4 No. 2 (2026)

of establishing an integrated information and analytical environment designed to support a network of situation centres and facilitate information exchange among the entities involved in strategic monitoring. Practical experience demonstrated that the conceptual principles embedded in the system can effectively support strategic management through the provision of comprehensive information and analytical capabilities.

A distinctive feature of the implementation process was the system's deployment in the day-to-day activities of operational users. This made it possible to evaluate not only the functionality of individual system modules but also the effectiveness of the proposed methodological approaches to organizing strategic monitoring, facilitating interagency information sharing, and supporting strategic decision-making.

Overall, the practical operation of the SOTA information and analytical system confirmed the validity of the proposed Strategic Monitoring Concept and established a robust empirical foundation for its subsequent conceptual refinement and further theoretical development.

Advancing the Strategic Monitoring Concept Through the Practical Implementation of the SOTA Information and Analytical System

The practical operation of the SOTA information and analytical system enabled a transition from the empirical validation of the conceptual principles of strategic monitoring to their further theoretical development. An analysis of the accumulated implementation experience demonstrated that the outcomes of deploying the information and analytical system should be regarded not only as evidence of the effectiveness of the proposed solutions but also as a source of new scientific insights into the organization of strategic monitoring for Ukraine's national security and resilience.

First, the practical experience confirmed the pivotal role of an integrated information and analytical environment as the foundation for information exchange among the entities involved in strategic monitoring. The integration of heterogeneous information resources enables the development of comprehensive situational awareness by providing a continuous and multidimensional understanding of the security environment. In turn, this creates the conditions for its integrated assessment and enhances the quality and reliability of strategic decision-making.

The findings also provide grounds for refining the Strategic Monitoring Concept itself. Whereas earlier research primarily focused on its methodological and organizational foundations, the practical operation of the SOTA information and analytical system demonstrates that strategic monitoring should be understood as a continuous process of information and analytical support for strategic management. Within this framework, the information and analytical system performs not only technological functions but also integrates the processes of data collection, accumulation, analysis, forecasting, and information visualization required to support strategic decision-making.

Accordingly, the practical implementation of the SOTA information and analytical system has expanded the conceptual foundations of strategic monitoring by clarifying the roles of the integrated information and analytical environment, interagency information sharing, and strategic situational awareness as the key components underpinning its further development.

The results indicate that the practical implementation of the SOTA information and analytical system should be viewed not merely as the deployment of an information technology solution but also as an important source of empirical evidence for the further development of the Strategic Monitoring Concept for Ukraine's National Security and Resilience. Unlike the authors' previous studies, in which the conceptual framework was established primarily through theoretical reasoning, the present study demonstrates that these conceptual principles can be refined and further developed on the basis of empirical evidence obtained through the system's practical operation.

The practical significance of the findings lies in confirming the suitability of an integrated information and analytical environment as the organizational and technological foundation of strategic monitoring. This creates opportunities for strengthening interagency information sharing, enhancing strategic situational awareness, and improving information and analytical support for

ISSN (print): 2786-9318
ISSN (online): 2786-9326
Military Science. Vol. 4 No. 2 (2026)

strategic management.

At the same time, the findings identify several directions for the further development of the Strategic Monitoring Concept. These include improving methods for the integrated assessment of the security environment, advancing strategic forecasting capabilities, ensuring the interoperability of information and analytical systems, and enhancing their adaptability to emerging security challenges. Overall, the practical experience gained through the operation of the SOTA information and analytical system demonstrates that the continued development of the Strategic Monitoring Concept should be grounded in empirically validated evidence, thereby expanding both its scientific contribution and its practical applicability.

Conclusion

The present study has advanced the Strategic Monitoring Concept for Ukraine's National Security and Resilience **by** synthesizing the results obtained from the practical operation of the SOTA information and analytical system**.** Unlike the authors' previous studies, which primarily focused on establishing the conceptual, methodological, and organizational foundations of strategic monitoring, this study further develops the concept on the basis of empirical evidence derived from its practical implementation.

The practical operation of the SOTA information and analytical system made it possible not only to refine individual conceptual principles but also to advance the Strategic Monitoring Concept by substantiating strategic monitoring as a continuous process of information and analytical support for strategic management and by identifying an integrated information and analytical environment as the system-forming element of the concept.

The scientific contribution of this study lies in demonstrating that the practical operation of an information and analytical system can serve as an empirical source for the further development of the theoretical foundations of strategic monitoring. This represents a transition from a predominantly theory-driven conceptual framework to one that is further developed and refined on the basis of empirically validated evidence.

Future research should focus on advancing methods for the integrated assessment of the security environment, improving strategic forecasting models, ensuring the interoperability of information and analytical systems, and adapting the Strategic Monitoring Concept to emerging challenges in national security and public administration.

Recommendations

The findings of this study may be applied to further advance the national strategic monitoring system for Ukraine's national security and resilience, enhance information and analytical support for strategic management, and support the digital transformation of public authorities, security and defence institutions, and other governmental organizations.

Based on the research findings, the following recommendations are proposed:

1. To incorporate the refined conceptual principles of strategic monitoring into the development and improvement of the regulatory and methodological framework governing the national strategic monitoring system for Ukraine's national security and resilience.

2. To apply the research findings to the development, modernization, and integration of information and analytical systems used by public authorities, security and defence institutions, and organizations responsible for the resilience of critical infrastructure, with the objective of establishing a unified integrated information and analytical environment.

3. To use the proposed approaches to further develop the network of situation centres, strengthen interagency information sharing, and enhance strategic situational awareness in support of the preparation and strategic decision-making processes.

4. To direct future research toward improving methods for the integrated assessment of the

ISSN (print): 2786-9318
ISSN (online): 2786-9326
Military Science. Vol. 4 No. 2 (2026)

security environment, advancing strategic forecasting, exploring the application of artificial intelligence technologies in strategic monitoring, and ensuring the interoperability and adaptability of information and analytical systems in response to the evolving security environment.

The functionality of the SOTA information and analytical system also requires further enhancement. First, the system should be expanded to support the identification and assessment of emerging opportunities in addition to security threats. Second, it should incorporate a comprehensive framework for assessing Ukraine's national security and resilience based on indicators reflecting the implementation status of all national interests.

Conflict of Interest

The authors declare that they have no competing interests related to the subject of the article.

References

1. Dobysh, M., Ihnatiev, A., Kupriienko, D., Morklianyk, B., Petrov, V., Salnikova, O., Solomytskyi, O., & Trofymenko, V. (2026). Methodological foundations and organizational architecture of an integrated system of strategic monitoring of national security and resilience of Ukraine. *Naukovi Innovatsii ta Peredovi Tekhnolohii*, *3*(55), 93–108. https://doi.org/10.52058/2786-5274-2026-3(55)-93-108
2. Dobysh, M., Ihnatiev, A., Kupriienko, D., Morklianyk, B., Petrov, V., Salnikova, O., Solomytskyi, O., & Trofymenko, V. (2026). Strategic management of the system of realization of national interests of Ukraine: Universal model and digital ecosystem of situational centers. *Natsionalni Interesy Ukrainy*, *3*(20), 292–308. https://doi.org/10.52058/3041-1793-2026-3(20)-292-308
3. Borovyk, O., Kupriienko, D., Bratko, A., et al. (2023). Methodology for developing a security environment. *Journal of Liberty and International Affairs*, *9*(3), 53–73. https://doi.org/10.47305/JLIA2393041b
4. Kuikka, V. (2021). *Modelling of military capabilities, combat outcomes and networked systems with probabilistic methods* (Doctoral dissertation, National Defence University). Doria. https://www.doria.fi/handle/10024/181505
5. Balcaen, P. (2021). *The hybridisation of conflict: A defence economic perspective* (Doctoral dissertation, Vrije Universiteit Brussel). Royal Military Academy. https://cris.vub.be/ws/portalfiles/portal/87378808/15122021_Hybridisation_of_conflict_PhD_BALCAEN.pdf
6. Verkhovna Rada of Ukraine. (2018). *On National Security of Ukraine: Law of Ukraine No. 2469-VIII of June 21, 2018*. https://zakon.rada.gov.ua/laws/show/2469-19
7. President of Ukraine. (2021). *On the Decision of the National Security and Defense Council of Ukraine of August 20, 2021 "On the Introduction of the National Resilience System": Decree of the President of Ukraine No. 479/2021 of September 27, 2021*. https://zakon.rada.gov.ua/laws/show/479/2021
8. President of Ukraine. (2021). *Concept for Ensuring the National Resilience System*. https://zakon.rada.gov.ua/laws/show/479/2021
9. President of Ukraine. (2021). *On the Decision of the National Security and Defense Council of Ukraine of June 4, 2021 "On Improving the Network of Situational Centers and Digital Transformation of the National Security and Defense Sector": Decree of the President of Ukraine No. 260/2021 of June 18, 2021*. https://zakon.rada.gov.ua/laws/show/260/2021
10. Cabinet of Ministers of Ukraine. (2023). *On Approval of the Action Plan for the Implementation of the Concept for Ensuring the National Resilience System until 2025: Order of the Cabinet of Ministers of Ukraine No. 1025-r of November 10, 2023*. https://zakon.rada.gov.ua/laws/show/1025-2023-%D1%80

The Central Research institute
of the Armed Forces of Ukraine

ISSN (print): 2786-9318
ISSN (online): 2786-9326
Military Science. Vol. 4 No. 2 (2026)

Розвиток концепції стратегічного моніторингу національної безпеки та стійкості України за результатами практичної реалізації інформаційно-аналітичної системи “СОТА”

Микола Добиш
кандидат географічних наук
заступник начальника центру – начальник 3 відділу 7 центру
Державний науково-дослідний інститут технологій кібербезпеки та захисту інформації
03142, вулиця Максима Залізняка, 3, Київ, Україна
e-mail: m.dobysh@cip.gov.ua
ORCID: 0000-0001-9024-9771

Дмитро Купрієнко
доктор військових наук, професор
начальник відділу забезпечення якості освіти – головний науковий співробітник
Національна академія Державної прикордонної служби України
імені Богдана Хмельницького (військова частина 9960)
29007, вулиця Шевченка, 46, Хмельницький, Україна
e-mail: dakupriyenko@gmail.com
ORCID: 0000-0002-4086-1310

Богдан Моркляник
заслужений працівник освіти України
доктор технічних наук, професор
професор кафедри інформаційних технологій
Воєнна академія імені Євгенія Березняка
04050, вулиця Іллєнка, 81, Київ, Україна
e-mail: morklyanykb@gmail.com
ORCID: 0009-0000-6564-6804

Валентин Петров
доктор політичних наук, доцент
професор кафедри глобальної та національної безпеки
Навчально-науковий інститут публічного управління та державної служби
Київський національний університет імені Тараса Шевченка
04050, вулиця Академіка Ромоданова, 12/2, Київ, Україна
e-mail: valentyn.petrov@gmail.com
ORCID: 0000-0003-3067-4367

Ольга Сальнікова
заслужений діяч науки і техніки України
доктор наук з державного управління, старший науковий співробітник
професор кафедри теорії та практики управління факультету соціології і права
Національний технічний університет України
“Київський політехнічний інститут імені Ігоря Сікорського”
03056, проспект Перемоги, 37, Київ, Україна
e-mail: olga_salnikova@ukr.net
ORCID: 0000-0002-7190-6091

The Central Research institute
of the Armed Forces of Ukraine

ISSN (print): 2786-9318
ISSN (online): 2786-9326
Military Science. Vol. 4 No. 2 (2026)

Олексій Соломицький
доктор військових наук, професор
начальник відділу оборонного менеджменту та воєнної політики – заступник начальника управління оборонного менеджменту та розвитку збройних сил
Центральний науково-дослідний інститут Збройних Сил України
03049, проспект Повітряних Сил, 28 Б, Київ, Україна
e-mail: solosa1@gmail.com
ORCID: 0000-0001-8061-8895

Володимир Трофименко
заслужений юрист України
доктор юридичних наук, професор
заступник Голови Державної служби спеціального зв'язку та захисту інформації України
Державна служба спеціального зв'язку та захисту інформації України
03110, вулиця Солом'янська, 13, Київ, Україна
e-mail: v.trofymenko@cip.gov.ua
ORCID: 0000-0001-6032-5550

Анотація. У статті досліджено розвиток концепції стратегічного моніторингу національної безпеки та стійкості України на основі узагальнення результатів практичної реалізації інформаційно-аналітичної системи «СОТА». Метою дослідження є визначення наукових положень, що отримали емпіричне підтвердження під час функціонування системи, та обґрунтування їх значення для подальшого розвитку теоретичних засад стратегічного моніторингу. Методологічну основу дослідження становлять системний, структурно-функціональний і порівняльний аналіз, а також методи наукового узагальнення й абстрагування. Емпіричну базу сформовано за результатами практичного функціонування мережевої інформаційно-аналітичної системи «СОТА» в органах державної влади, установах сектору безпеки і оборони та інших державних організаціях. Результати дослідження підтверджують, що практична реалізація інформаційно-аналітичної системи забезпечує емпіричну основу для вдосконалення концептуальних положень стратегічного моніторингу. Обґрунтовано розгляд стратегічного моніторингу як безперервного процесу інформаційно-аналітичного супроводження стратегічного управління та визначено інтегроване інформаційно-аналітичне середовище як системоутворювальний елемент відповідної концепції. Уточнено значення міжвідомчої інформаційної взаємодії, стратегічної ситуаційної обізнаності та інтеграції різнорідних інформаційних ресурсів у забезпеченні підтримки ухвалення стратегічних управлінських рішень. Отримані результати розширюють теоретичні засади стратегічного моніторингу шляхом обґрунтування використання результатів практичного функціонування інформаційно-аналітичної системи як емпіричної основи їх подальшого розвитку. Практичне значення результатів полягає у можливості їх використання для розвитку державної системи стратегічного моніторингу, удосконалення інформаційно-аналітичного забезпечення стратегічного управління, цифрової трансформації сектору безпеки і оборони, а також під час створення й модернізації інтегрованих інформаційно-аналітичних систем.

Ключові слова: інтегроване інформаційно-аналітичне середовище; інформаційно-аналітична система; міжвідомча інформаційна взаємодія; ситуаційна обізнаність; стратегічне управління; підтримка ухвалення стратегічних рішень.